WHAT IS CLAIMED IS:

1. A magneto-optical recording medium comprising a substrate, and a multilayer film formed on the substrate, the multilayer film comprising a first magnetic layer, a second magnetic layer, and a third magnetic layer, the second magnetic layer being interposed between the first and third magnetic layers and having a Curie temperature T_{C2} that is lower than a Curie temperature T_{C1} of the first magnetic layer and a Curie temperature T_{C3} of the third magnetic layer, the third magnetic layer being a perpendicular magnetization film,

wherein in at least a part of a temperature range lower than the Curie temperature T_{C2}, the first magnetic layer is exchange-coupled with the second magnetic layer so as to be perpendicularly magnetized, and a magnetization of the third magnetic layer is transferred to the first magnetic layer via the second magnetic layer due to the exchange coupling,

wherein the second magnetic layer is in an in-plain magnetization state at room temperature, and makes transition to a perpendicular magnetization state in a temperature range from a critical temperature T_{CR} that is higher than room temperature to the Curie temperature T_{C2}.

2. The magneto-optical recording medium according to claim 1, wherein the first and second magnetic layers are in contact with each other.

3. The magneto-optical recording medium according to claim 1, wherein a difference between the Curie temperature T_{C2} and the critical temperature T_{CR} is less than 100°C.

4. The magneto-optical recording medium according to claim 1, wherein a difference between the Curie temperature T_{C1} and the Curie temperature T_{C2} is not less than 100°C.

5. The magneto-optical recording medium according to claim 1, wherein the Curie temperature T_{C2} is not lower than 130°C and not higher than 160°C.

6. The magneto-optical recording medium according to claim 1, wherein the second magnetic layer includes an alloy selected from the group

consisting of GdFe, GeFeCo, GeFeAl, GdFeCr, GdFeCoCr, GdFeSi, GdFeCoSi, GeFeCoAl, TbFe, TbFeCo, TbFeAl, TbFeCr, TbFeCoCr, TbFeSi, TbFeCoSi, and TbFeCoAl.

7. The magneto-optical recording medium according to claim 1, wherein the second magnetic layer contains an alloy expressed by a composition formula given as:

$(Gd_xFe_{1-x})_{1-y}M_y$,

where M represents at least one selected from Cr, Si, and Al, x represents a numerical value of not less than 0.15 and not more than 0.40, and y represents a numerical value of not less than 0 and not more than 0.30.

8. The magneto-optical recording medium according to claim 1, wherein the second magnetic layer contains an alloy expressed by a composition formula given as:

$(Tb_xFe_{1-x})_{1-y}M_y$,

where M represents at least one selected from Cr, Si, and Al, x-represents a numerical value of not less than 0.15 and not more than 0.40, and y represents a numerical value of not less than 0 and not more than 0.30.

9. The magneto-optical recording medium according to claim 1, wherein the first magnetic layer has a domain-wall coercive force at a low level such that, in a masked region which has been heated locally, thereby having a temperature above the Curie temperature T_{C2}, a domain wall is permitted to move from a perpendicular magnetization region that is magnetized perpendicularly by the exchange coupling with the second magnetic layer to the masked region.

10. The magneto-optical recording medium according to claim 1, wherein the second magnetic layer and the third magnetic layer are exchange-coupled in at least a part of a temperature range lower than the Curie temperature T_{C2}.

11. The magneto-optical recording medium according to claim 1, wherein a non-magnetic layer is provided between the second and third magnetic layers, and the second and third magnetic layers are magnetostatically coupled with each other in at least a part of a region at a temperature lower

than the Curie temperature T_{C2}.

12. The magneto-optical recoding medium according to claim 11, wherein the non-magnetic layer has a thickness of not less than 1 nm and not more than 10 nm.

13. The magneto-optical recording medium according to claim 1, wherein the first magnetic layer is in an in-plane magnetization state at room temperature.

14. The magneto-optical recording medium according to claim 1, wherein the first magnetic layer is in a perpendicular magnetization state at room temperature.

15. The magneto-optical recording medium according to claim 1, wherein the first magnetic layer is made of not less than two magnetic films.

16. The magneto-optical recording medium according to claim 15, wherein the first magnetic layer includes a magnetic film A, and a magnetic film B having a Curie temperature higher than a Curie temperature of the magnetic film A, which are provided in the stated order from the second magnetic layer side.

17. The magneto-optical recording medium according to claim 1, wherein a fourth magnetic layer having a Curie temperature T_{C4} that is higher than the Curie temperature T_{C2} and the Curie temperature T_{C1} is provided between the first and second magnetic layers.

18. A method for reproducing information from a magneto-optical recording medium according to claim 1, the method comprising:

irradiating the medium with a laser beam with relative movement between the laser beam and the surface of the medium so as to form a masked region and a perpendicular magnetization region, wherein the masked region is a region heated to a temperature not lower than the Curie temperature T_{C2} of the second magnetic layer and not higher than the Curie temperature T_{C1} of the first magnetic layer and the Curie temperature T_{C3} of the third magnetic layer, and the perpendicular magnetization region is a

region where the first magnetic layer is exchange-coupled with the second magnetic layer so as to be perpendicularly magnetized and a magnetization of the third magnetic layer is transferred to the first magnetic layer via the second magnetic layer due to the exchange coupling,

wherein a domain wall of the first magnetic layer is moved from the perpendicular magnetization region to the masked region thereby enlarging a magnetic domain in the perpendicular magnetization region;

and,

detecting a change in a polarization plane of a reflected light of the light beam from the enlarged magnetic domain.